MARCH 1983

# MICROSOFT™

# PRODUCT CATALOG

BETTER TOOLS FOR MICROCOMPUTERS

At Microsoft, we think that quality is something that all of us should expect in every product we buy. Claiming quality is easy. Earning a reputation for quality isn't. And retaining that reputation is even harder.

The best demonstration of what we are is what we make. Languages, utilities and application software for microcomputers.

We're microcomputer software specialists. We always have been. Our software products are designed to get the highest possible utility from your computer. Because that's what you expect from us. We don't get points for doing it right. We get points for doing it right...then improving it.

Constant research helps us provide unique, versatile and highly useful software products. This catalog describes those products for you.

**About our system designator bars**

Four color bars appear at the beginning of each Microsoft product description. These color bars pertain to the operating system each product supports.

Refers to Apple® IIe, II or III.
Refers to CP/M®-80 operating system.
Refers to MS™-DOS operating system.
Refers to other specified machines/operating systems.

Each appearance of one or more of these bars in green on a Microsoft product page indicates the support of that product for that system.

# CONTENTS

Apple
CP/M-80
MS-DOS

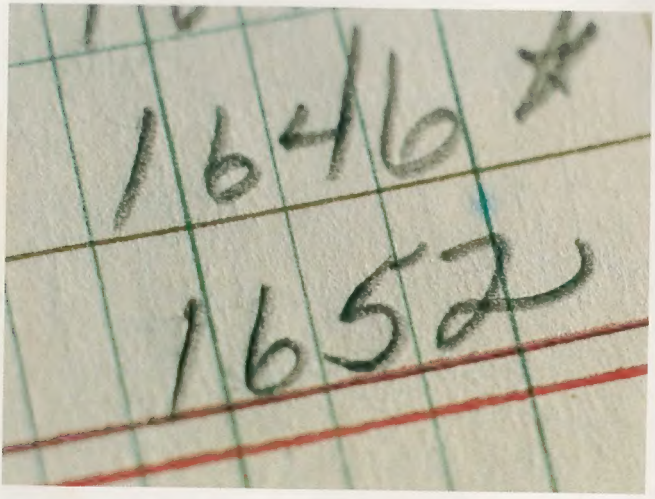
The Microsoft® Multiplan™ electronic worksheet replaces the time-consuming, midnight-oil method of using pencil, eraser, ledger paper and calculator to develop worksheets. More powerful and easier to use than other electronic worksheets, the Multiplan program will help you get fast answers to all kinds of planning, modeling and forecasting questions.

Multiplan starts by presenting you with a blank grid of rows and columns. You build your worksheet on this grid, just as you would on ledger paper. You enter numbers, such as sales figures and expenses, and connect them with the formulas you ordinarily use; using "SALES-COSTS" to calculate your profit, for instance.

After that, you do the brainwork and the computer does the tedious calculations. What if sales rise by 20%? What if inflation boosts the costs of materials by 12%? You can ask yourself these questions, change the critical numbers and watch the video display as the computer automatically recalculates the worksheet. If you need the results for a report or presentation, the computer can print them out, quickly and neatly.

There are other electronic worksheets available. But most of them use cryptic computer codes and abbreviations that make them tedious to learn and cumbersome to use.

The Multiplan electronic worksheet from Microsoft was designed to be the friendliest, most powerful electronic worksheet you can buy. You'll save time and frustration in planning and management—at the office, at home, even in technical and industrial computation.



## Microsoft Multiplan Electronic Worksheet: Here's What It Can Do:

### Provide You With Powerful Capabilities

■ Multiplan lets you link different worksheets and share information between them. For example, if you link regional sales forecasts with the company forecast, changes in Region One will be reflected in the company forecast.

■ Multiplan lets you present results in two powerful ways: (1) you can sort entries alphabetically or numerically; and (2) you can present the results of a formula as numbers or letters.

■ Powerful formatting, alignment and printing options enable you to print out elegant finished reports. Formatting options include commas; use of "$", "%" symbols; and the ability to fix the decimal point anywhere between 0 and 16 places.

### Help You Work Quickly and Easily

■ User prompts and English commands make the Multiplan program easy to learn. The prompts tell you what to do next, and present you with a list of commands in English.

■ Multiplan lets you work in English, the way you think. For instance, you can assign a name such as "SALES" to an area of the worksheet, then refer to the area by name. You can build formulas using names: "SALES-COSTS" = profit.

■ A special online reference guide lets you ask the computer for additional help anytime. It provides information about the command in use, or reference to detailed sections on other commands, editing, formulas, the keyboard or applications.

■ Multiplan has complete tutorial and reference documentation.

### Adapt to Your Unique Needs

■ Multiplan will help you in all types of business analysis and forecasting, including cash flow analysis, budget planning and consolidation; resource allocation; and merger analysis.

■ You'll get a better handle on your personal finances, too. You can plan your budget, then see how a few changes in spending affect your total financial picture. Multiplan also can help with stock portfolio analysis and home investment projections.

■ Engineering tabulations and data analysis can be made easier. Multiplan will help you set up worksheets for formula analysis, statistical research, and electrical engineering projects such as linearity analysis.

## System Requirements:

Apple® IIe or Apple II system—64K or 44 memory, one disk drive; Apple IIe, Apple II or III with SoftCard™ system—64K, 56K or 128K respectively, one disk drive; CP/M-80 system—56K memory, one disk drive; MS™-DOS system—64K memory*, one disk drive.

*Based on 48K available user memory. Use MS-DOS "check disk" utility to determine if available memory meets or exceeds 48K.

CP/M-80
MS-DOS

Microsoft® BASIC is truly everyone's language. Regarded as the standard language for general-purpose computer programming, Microsoft BASIC can be utilized for a wide variety of applications by programmers at varying levels of expertise.

If you're new to programming, you'll find Microsoft BASIC is a versatile, easy-to-learn-and-use language that accepts English-like commands. Experienced programmers will appreciate its powerful features and the flexibility they permit when writing, editing, debugging and running applications.

The Microsoft BASIC Interpreter is the most popular BASIC interpreter in use today. It has been installed in over one million microcomputers since Microsoft introduced BASIC in 1975 as the first high level language written for micros. Microsoft BASIC runs on all the major microcomputers, including those produced by Apple Computer Inc., Radio Shack, Atari, IBM, Commodore, NEC, Xerox and others.

This ANSI-standard BASIC interpreter also supports many unique features seldom found in other BASICs. BASIC Release 5 from Microsoft is the most extensive implementation of BASIC available for microcomputers.

Microsoft BASIC is the only BASIC with a compatible compiler, the Microsoft® BASIC Compiler. They're an unbeatable combination for the programmer who wants to interactively write and debug in BASIC, then compile the program and execute it at high speed.

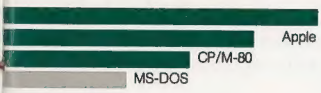
**The Microsoft BASIC Interpreter: Here's What It Can Do:**

- Suit both the beginning and advanced BASIC programmer. While Microsoft BASIC is easy to learn and use, it still possesses powerful features needed for more complex applications.
- Make it easy to write, edit and debug your program with interactive, line-by-line data entry and special editing and debugging commands.
- Provide easy access to your program even as you are creating it. Statements are entered directly into the computer's memory and can be run at any time. If the program already is written and stored on disk, it can be recalled easily and then quickly loaded into memory for editing access.
- Offer great versatility for the programmer. Microsoft BASIC is used to create applications ranging from finance and accounting to scientific analysis to educational and recreational programs.

**System Requirements**

CP/M-80 system—32K memory, one disk drive; MS™-DOS system—4K memory*, one disk drive.

*Based on 44K available user memory. Use MS-DOS "check disk" utility to determine if available memory meets or exceeds 44K.




Increased program execution speed is just one of the benefits you'll derive from the Microsoft® BASIC Compiler. It's the ideal tool for everyone who programs in Microsoft® BASIC and is the only compiler with a compatible interpreter—the Microsoft BASIC Interpreter.

Together, the Microsoft BASIC Compiler and Interpreter form a powerful BASIC programming environment. You can write, run and debug your program interactively with the Microsoft BASIC Interpreter and then compile it with the Microsoft BASIC Compiler to increase program execution speed and decrease memory space.

A program compiled with the Microsoft BASIC Compiler executes typically 3 to 10 times faster than the same interpreted program. Programs that make maximum use of integer operations can execute up to 30 times faster.

Since the Microsoft BASIC Compiler was created to support the interpreted BASIC language, it supports the BASIC Interpreter's features and functions except those not applicable to a compiler.

If you program in Microsoft BASIC, you should have the best compiler available—the compatible Microsoft BASIC Compiler. It generally is faster, more efficient and accurate than its competitors. And it's the only BASIC compiler that bears the Microsoft name and reputation for reliable, top quality software.

**The Microsoft BASIC Compiler: Here's What It Can Do:**

- Greatly increase program execution speed—a crucial factor when running time-related programs.
- Perform with optimum efficiency. This compiler translates source code into highly optimized object code that makes the most efficient use of space and execution time, eliminates redundancy, simplifies arithmetic expressions and makes maximum use of integers.
- Protect your source code by translating it into relocatable object code which is closer to machine code. If you sell your compiled program commercially, you only need to release the object code, thus protecting your original program.
- Increase the accuracy of calculations with double precision transcendental functions which carry numeric accuracy to 16 digits.

**System Requirements:**

Apple IIe or Apple II with Microsoft® Softcard™ system—64K or 44K memory, one disk drive; CP/M-80 system—48K memory, one disk drive; MS™-DOS system—64K memory, one disk drive (two recommended).

*Based on 44K available user memory. Use DOS "check disk" utility to determine if available memory meets or exceeds 44K.

MS-DOS

A powerful and efficient addition to the Microsoft family of languages, the Business BASIC Compiler is specifically designed for the development of business applications in BASIC.

The Business BASIC Compiler is a superset of the Microsoft® BASIC Compiler, with the addition of significant new commands and capabilities. Among these are: multi-line functions, which allow the user to define whole sections of code for optimum development of large business applications; decimal math package, for 14-digit precision in numerical calculations; and support for linking separately compiled BASIC programs and routines.

Designed to run under MS™-DOS, Microsoft's 16-bit operating system, the Business BASIC Compiler takes full advantage of this operating environment. It can run on any 16-bit microcomputer running MS-DOS, including the popular IBM® Personal Computer.

A fast, efficient compiler, the Business BASIC Compiler produces native assembly code rather than pseudo code.

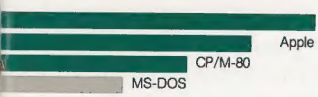
If you write business applications in BASIC, the Microsoft Business BASIC Compiler gives you everything you need: an easy-to-use-and-understand programming language—Microsoft® BASIC—in a version specifically tailored for the development of business software.

**The Microsoft Business BASIC Compiler: Here's What It Can Do:**

- Facilitate the development of business applications software in the easy-to-use-and-understand Microsoft BASIC language.
- Allow you to create business programs that run under MS-DOS, the most widely used operating system for 16-bit (8086/8088 based) systems, including the IBM PC, Victor® 9000 and other microcomputers.
- Provide the high degree of accuracy needed for the precise decimal-based calculations performed in business programs.
- Compile and run your programs very quickly. Execution speed typically is 3 to 10 times faster than the BASIC interpreter.
- Let you transport existing MS-BASIC or CBASIC® programs to run under the MS-DOS format.

**Sys Requirement**

MS-DOS system—64K memory*, one disk drive (two recommended).
*Based on 44K available user memory. Use MS-DOS "check disk" utility to determine if available memory meets or exceeds 44K.




COBOL is uniquely suited for handling the large volumes of data generated by businesses. The data in COBOL programs is arranged hierarchically and stored in a logical structure with direct connections between related data. And because COBOL programs are self documenting and use plain English operation and variable names, the COBOL programmer and the business user communicate easily.

In Microsoft® COBOL, Microsoft has combined the standard features found in COBOL on large computers with superior interactive capabilities that let you take full advantage of the one-on-one microcomputer environment.

An extensive implementation of the COBOL language, the Microsoft COBOL Compiler has received the same ANSI rating—low intermediate—as many microcomputer compilers. MS-COBOL also has many features that are standard for higher levels of validation including four types of data files.

Microsoft COBOL has been specially tailored to the microcomputer environment, with provisions for entry of data during program execution, advanced screen formatting capabilities, interactive debugging, and handling of very large programs. Microsoft® Sort, available as an option with Microsoft COBOL, adds a powerful record sorting facility.

**The Microsoft COBOL Compiler: Here's What It Can Do:**

- Let you transfer your COBOL programming skills on mainframe and minis to microcomputers.
- Help you access thousands of existing COBOL programs.
- Provide a structured programming environment that facilitates working with business data.
- Simplify configuration of menus and forms via tailorable screen-formatting facilities.
- Handle large numbers with the high level of precision you need for accounting and other business applications. COBOL accepts numbers of up to 18 digits and maintains accuracy up to 30 digits during internal calculations.
- Compile and run large programs even programs several times larger than memory.
- Allow you to link and run COBOL programs with Microsoft® FORTRAN Compiler, BASIC Compiler or Macro Assembler programs.

**System Requirements:**

Apple IIe or Apple II with SoftCard™ system—64K or 44K memory, two disk drives; CP/M-80 system—48K memory, one disk drive; MS™-DOS system—128K memory* required, two disk drives recommended.

*Based on 108K available user memory. Use "check disk" utility to determine if available memory meets or exceeds 108K.

MS-DOS

A powerful and efficient addition to the Microsoft family of languages, the Business BASIC Compiler is specifically designed for the development of business applications in BASIC.

The Business BASIC Compiler is a superset of the Microsoft® BASIC Compiler, with the addition of significant new commands and capabilities. Among these are: multi-line functions, which allow the user to define whole sections of code for optimum development of large business applications; decimal math package, for 14-digit precision in numerical calculations; and support for linking separately compiled BASIC programs and routines.

Designed to run under MS™-DOS, Microsoft's 16-bit operating system, the Business BASIC Compiler takes full advantage of this operating environment. It can run on any 16-bit microcomputer running MS-DOS, including the popular IBM® Personal Computer.

A fast, efficient compiler, the Business BASIC Compiler produces native assembly code rather than pseudo code.

If you write business applications in BASIC, the Microsoft Business BASIC Compiler gives you everything you need: an easy-to-use-and-understand programming language—Microsoft® BASIC—in a version specifically tailored for the development of business software.

**The Microsoft Business BASIC Compiler: Here's What It Can Do:**

- Facilitate the development of business applications software in the easy-to-use-and-understand Microsoft BASIC language.
- Allow you to create business programs that run under MS-DOS, the most widely used operating system for 16-bit (8086/8088 based) systems, including the IBM PC, Victor® 9000 and other microcomputers.
- Provide the high degree of accuracy needed for the precise decimal-based calculations performed in business programs.
- Compile and run your programs very quickly. Execution speed typically is 3 to 10 times faster than the BASIC interpreter.
- Let you transport existing MS-BASIC or CBASIC® programs to run under the MS-DOS format.

**Sys Requirement**

MS-DOS system—64K memory*, one disk drive (two recommended).
*Based on 44K available user memory. Use MS-DOS "check disk" utility to determine if available memory meets or exceeds 44K.


COBOL is uniquely suited for handling the large volumes of data generated by businesses. The data in COBOL programs is arranged hierarchically and stored in a logical structure with direct connections between related data. And because COBOL programs are self documenting and use plain English operation and variable names, the COBOL programmer and the business user communicate easily.

In Microsoft® COBOL, Microsoft has combined the standard features found in COBOL on large computers with superior interactive capabilities that let you take full advantage of the one-on-one microcomputer environment.

An extensive implementation of the COBOL language, the Microsoft COBOL Compiler has received the same ANSI rating—low intermediate—as many microcomputer compilers. MS-COBOL also has many features that are standard for higher levels of validation including four types of data files.

Microsoft COBOL has been specially tailored to the microcomputer environment, with provisions for entry of data during program execution, advanced screen formatting capabilities, interactive debugging, and handling of very large programs. Microsoft® Sort, available as an option with Microsoft COBOL, adds a powerful record sorting facility.

**The Microsoft COBOL Compiler: Here's What It Can Do:**

- Let you transfer your COBOL programming skills on mainframe and minis to microcomputers.
- Help you access thousands of existing COBOL programs.
- Provide a structured programming environment that facilitates working with business data.
- Simplify configuration of menus and forms via tailorable screen-formatting facilities.
- Handle large numbers with the high level of precision you need for accounting and other business applications. COBOL accepts numbers of up to 18 digits and maintains accuracy up to 30 digits during internal calculations.
- Compile and run large programs even programs several times larger than memory.
- Allow you to link and run COBOL programs with Microsoft® FORTRAN Compiler, BASIC Compiler or Macro Assembler programs.

**System Requirements:**

Apple IIe or Apple II with SoftCard™ system—64K or 44K memory, two disk drives; CP/M-80 system—48K memory, one disk drive; MS™-DOS system—128K memory* recommended, two disk drives recommended.

*Based on 108K available user memory. Use MS-DOS "check disk" utility to determine if available memory meets or exceeds 108K.

Apple
CP/M-80

Designed specifically for solving numerical problems, FORTRAN has become the most widely used programming language for scientific and engineering applications. Its variable types and complete subroutine library for performing calculations make FORTRAN ideal for applications where computation of complex mathematical formulas and expressions is required.

The Microsoft® FORTRAN-80 Compiler is a very powerful and efficient implementation of the FORTRAN language for microcomputers. It meets American National Standards Institute (ANSI) 1966 requirements except for the COMPLEX data type and also features many extensions to the standard to optimize FORTRAN in the microcomputer environment.

Since the 1966 ANSI standard is the one for which most FORTRAN applications have been written, you'll find many existing scientific and engineering programs that can be easily adapted to Microsoft FORTRAN-80. If you're an experienced FORTRAN programmer on mainframe or minicomputers, Microsoft FORTRAN-80 is most like the FORTRAN you're used to.

The Microsoft FORTRAN-80 Compiler is the best FORTRAN for microcomputers. It can compile programs in a small amount of space. It requires no more than 27K bytes of memory to compile most programs. It generates true machine code, so compiled programs run fast. And optimizations performed during compilation make the existing code compact.

**The Microsoft FORTRAN-80 Compiler: Here's What It Can Do:**

- Provide you with a microcomputer version of FORTRAN that's comparable to mini and mainframe versions and meets the 1966 ANSI standard except for the COMPLEX data type.
- Generate compiled programs that run fast and are compact. The Microsoft FORTRAN-80 Compiler generates native object code that is optimized in four ways.
- Supply an extensive library of subroutines, including efficient routines for 16-bit and 32-bit integer arithmetic, and 32-bit and 64-bit floating point arithmetic.
- Simplify program debugging by providing diagnostic output.
- Enable you to easily interface non-standard devices to FORTRAN programs. Microsoft FORTRAN-80 lets you write non-standard I/O drivers for each Logical Unit Number.

**Sy Requireme**

.pple IIe or Apple II with SoftCard™ system—64K or 44K memory, ıe disk drive; CP/M-80 system—32K memory, one disk drive.

MS-DOS

The Microsoft® FORTRAN Compiler provides an effective and efficient implementation of FORTRAN-77 (at the subset level) for the 16-bit microprocessor environment.

MS-FORTRAN meets the 1977 ANSI standard requirements at the subset level and includes a number of extensions that provide features of the full standard. Additional extensions are included to optimize FORTRAN in the 16-bit microcomputer environment.

Designed to take full advantage of the Intel floating point coprocessor, MS-FORTRAN's 8087 support makes efficient use of both space and execution time. FORTRAN programs compiled using MS-FORTRAN's 8087 support significantly improve computation speed of mathematical expressions. MS-FORTRAN also includes 8087-emulation software in case your computer does not have an 8087 coprocessor.

MS-FORTRAN permits modules written in 8086 macro assembly language, MS-Pascal, and MS-FORTRAN to be linked together into one program. This common linker reduces code development effort when existing programs are reused and extends applications programming capabilities.

**Microsoft FORTRAN Compiler: Here's What It Can Do:**

- Give you the only 16-bit native code FORTRAN compiler that meets the X3.9-1978 ANSI standard for FORTRAN at the subset level including many features of the full standard.
- Utilize the 8087 floating point coprocessor to achieve faster numeric processing, and provide 8087-emulation software.
- Handle double-precision calculations needing high level accuracy to 14 significant digits.
- Use IEEE standard floating point arithmetic.
- Provide several precision levels for integers and logicals for faster processing when a smaller value range is acceptable.
- Support interactive application programs using extended I/O operations.
- Let you create custom utility libraries and modularize programs with the library manager.

**System Requirements:**

MS™-DOS system—160K memory*, two disk drives.

*Based on 140K available user memory. Use MS-DOS "check disk" utility to determine if available memory meets or exceeds 140K.

MS-DOS

Microsoft® Pascal Compiler offers systems programmers a clean, structured language especially adept at handling complex problems quickly.

Specifically designed for the 16-bit microprocessor environment, MS-Pascal generally conforms to the ISO proposed standard (level 0). MS-Pascal offers more extensions to the existing language than other Pascal compilers.

Because MS-Pascal generates native machine code, it offers the programming advantages of a high level language without sacrificing speed. Low level escapes to the machine level allow programs written in MS-Pascal to achieve speeds comparable to assembly language.

MS-Pascal also offers fast numeric processing in conjunction with an 8087 coprocessor; and provides 8087-emulation software if your computer does not have an 8087 chip.

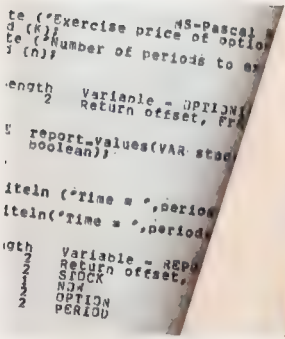
**Microsoft Pascal Compiler: Here's What It Can Do:**

- Offer optional double precision real numbers in IEEE floating point standard format.
- Reduce code development effort by permitting modules written in 8086 macro assembly language, MS-FORTRAN, and MS-Pascal to be linked together into one program.
- Offer extensive program development features such as: address types, constants and functions of ARRAY and RECORD types, SUPER ARRAYs, control flow features, separately compiled UNITs, variable length strings, plus many more.

**System Requirements:**

MS-DOS system—160Kmemory*, two disk drives.

*Based on 140K available user memory. Use MS-DOS "check disk" utility to determine if available memory meets or exceeds 140K.




Apple

The Microsoft® Applesoft® Compiler converts Applesoft BASIC programs into true machine code with speed, ease and efficiency. Programs compiled with the Applesoft Compiler run at speeds 2 to 20 times faster than they run under the Applesoft interpreter.

Ideal for the Apple owner who writes large, complex BASIC programs, the Microsoft Applesoft Compiler makes it possible to quickly translate and execute programs which are limited in size only by the amount of memory in the computer.

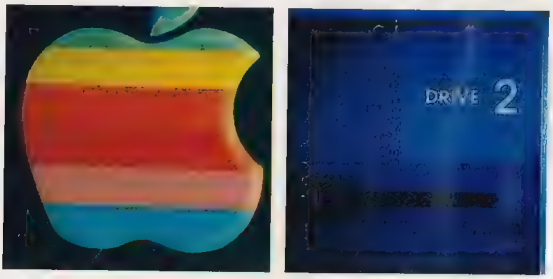
The Microsoft Applesoft Compiler is compatible with the Applesoft BASIC interpreter so you can write and debug your programs in Applesoft BASIC, the easy-to-understand language you already know, and then efficiently compile your program with the Applesoft Compiler.

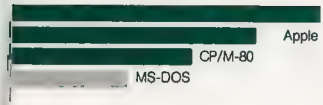
**The Microsoft Applesoft Compiler: Here's What It Can Do:**

- Let you compile and run large programs while it minimizes code expansion.
- Make BASIC programs run fast.
- Make it easy and fun to do high-res graphics animation. You can write your program in easy-to-use BASIC, turn it over to the Applesoft Compiler for compilation and then run it at lightning speed to achieve the dramati · animation effects you want.
- Allow program interaction. The CHAIN with COMMON feature lets you write multi-faceted programs that can communicate with each other and run from one main menu.
- Provide source code security. The Applesoft Compiler converts your Applesoft BASIC program into highly efficient machine code.

**System Requirements:**

Apple IIe, Apple II Plus, Apple II system with Applesoft firmware card installed—64K for IIe or 48K memory for II and II Plus, one disk drive.






A sorting utility is essential for those applications with extensive manipulation of disk file data. Microsoft® Sort, a powerful, professional sorting facility for microcomputers, has the power to handle all types of sorting requirements extremely rapidly. The Microsoft Sort package includes both standalone and COBOL-hosted versions of Sort.

With Microsoft Sort, you aren't limited to ordering files by one criteria; you can also merge files, select a specified subset of files and compare records. Microsoft Sort sequences records by a set of data keys supplied by the programmer. There is no limit on the number or size of keys, allowing maximum flexibility in the number and arrangement of sorting requirements.

Microsoft Sort-S, the standalone version of the program, accepts user data files and arranges the records in the order the user specifies. For the COBOL-hosted version (Microsoft Sort-C), the source of input records may be one or more disk files, or records constructed in memory by a user-written COBOL procedure.

**Microsoft Sort: Here's What It Can Do:**

- Provide a flexible, general purpose sort method, using the binary insertion technique of sorting.
- Let you sort files, merge files, select specified records and compare records.
- Give you both a standalone sort program and a COBOL-hosted sorting facility in one package.
- Give you full choice in the number and arrangement of sorting categories by setting no limit on the number or size of keys and no limit on record size.
- Support all Microsoft file formats and all data types as keys.
- Let you sequence data to fit report or CRT formats.
- Easily adapt to a variety of file formats and data types.
- Provide for custom user code at record input, output, compare and selection exits.
- Provide comprehensive error reporting, so you can quickly locate and eliminate the source of errors.
- Handle very large file sizes—up to two million bytes.

**Systen Requiren**

ıple IIe or Apple II with SoftCard™ system—64K or 44K memory, - disk drive; CP/M-80 system—48K memory, one disk drive; *-DOS system—128K memory*, one disk drive.

sed on 108K available user memory. Use MS-DOS "check disk" utility to ırmine if available memory meets or exceeds 108K.

Apple

The Microsoft® A.L.D.S.™ system is an assembly language development system for the Apple II that lets you program in three different languages—Z80®, 8080 and 6502—all on your Apple. In addition to its exclusive Z80/8080/6502 capability, the A.L.D.S. system is the only Apple assembly language system with macro capability, relocatability and conditional assembly. This powerful system has most capabilities of the Microsoft® Macro Assembler package, plus many special features for use on the Apple II.

The A.L.D.S. system is designed to be used on the Apple II with the SoftCard™ system installed. The package includes:

1. MS™-Macro Assembler—a relocatable macro assembler for 8080 and Z80 microcomputer systems. A special pseudo-op, .6502, enables the assembler to accept 6502 opcodes.
2. MS™-Link—a versatile linking loader that lets you load any number of programs with one command.
3. MS™-CREF—a powerful cross reference facility.
4. 6502 Debugger—a program for debugging 6502 assembly language programs.
5. CPMXFER—a program to facilitate transfer of CP/M-80 files to Apple DOS.

**Microsoft A.L.D.S. System: Here's What It Can Do:**

- Let you program in any of three assembly languages: Z80, 8080 and 6502.
- Increase programming efficiency by letting you define macros to generate commonly used sequences of instructions.
- Let you load several assembled files together into user-defined memory areas.
- Make it easy to generate several versions of a program by allowing assembly of code only if a given condition is true.
- Let you link programs developed with A.L.D.S. to programs developed with the Microsoft® COBOL, FORTRAN, or BASIC Compiler.
- Let you transfer 6502 assembly language programs developed with A.L.D.S. to Apple DOS

**System Requirements:** Apple IIe or Apple II with SoftCard system or 44K memory, one disk drive.

CP/M-80

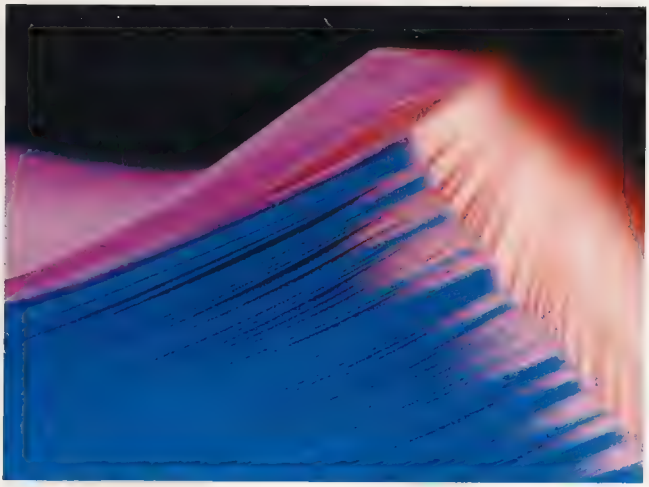
The Microsoft® Macro Assembler Package is a powerful, flexible assembly language development system designed for Z80 and 8080 assembly language programming. It includes:

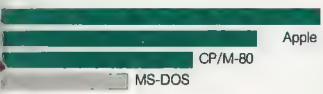
1. MS™-Macro Assembler—a relocatable macro assembler for Z80 and 8080 microcomputer systems.
2. MS™-Link—a versatile linking loader that lets you load any number of programs with one command.
3. MS™-CREF—a powerful cross reference facility.
4. MS™-LIB—a library manager for building or listing subroutine libraries.

**The Microsoft Macro Assembler Package: Here's What It Can Do:**

- Let you program in either Z80 or 8080 assembly language.
- Increase programming efficiency by letting you define macros to generate commonly used sequences of instructions.
- Let you load several assembled files together into user-defined memory areas.
- Make it easy to generate several versions of a program by allowing assembly of code only if a given condition is true.
- Let you link programs developed with the Microsoft Macro Assembler Package to programs developed with the Microsoft® COBOL, FORTRAN, or BASIC Compiler.

**System Requirements:** CP/M-80 system—48K memory, one disk drive.






muLISP™, Microsoft's implementation of LISP, is a high level, developmental language that is especially useful for symbol manipulation and the processing of symbolic expressions. The language of choice in the artificial intelligence community, LISP also is used by scientists, engineers and mathematicians.

The structures and features of Microsoft® muLISP make it well suited to this field. muLISP is noted for its recursive nature and its ability to manipulate arbitrary lists of data.

This language is a study of contrasts. Easy to learn and use, muLISP features very simple, consistent syntax which can be utilized to develop very complex structures. With muLISP you are given 84 primitively defined LISP functions from which you build your own language to meet your specific application needs.

Based on the original LISP 1.5, muLISP contains numerous upwardly compatible extensions which maximize execution speed and reduce storage requirements.

muSTAR™ is a resident screen-oriented editor that facilitates incremental program development. Corrections are implemented through the use of control characters, so modifications to the muLISP program are made without leaving the environment. muSTAR also contains a trace facility for debugging programs.

**muLISP/muSTAR: Here's What It Can Do:**

- Give you the smallest, fastest, most complete implementation of the LISP system for microcomputers.
- Produce very compact code that makes optimum use of memory space and executes very fast.
- Let you build the language that meets your programming needs by giving you 84 primitively defined LISP functions.
- Give you the accuracy and control you need for complex math applications with exact, infinite precision integer arithmetic.
- Make highly efficient use of space with dynamic memory management and dynamic allocation of data space boundaries.

**System Requirements:**

Apple IIe or Apple II with SoftCard™ sys[illegible]—64K or 44K mem[illegible]y, one disk drive; CP/M-80 system—32K [illegible]ory, one disk drive MS™-DOS—64K memory*, one disk dri[illegible]

*Based on 44K available user memory. Use [illegible]'s "check disk" uti[illegible]ty to determine if available memory meets or exce[illegible].

# SoftCard System of Products

Apple

The Microsoft® SoftCard™ system of products includes three hardware/software combination packages that enhance and expand the capabilities of Apple personal computers. These packages are the SoftCard system, the SoftCard Plus system, and the SoftCard Premium System.

Each SoftCard system product adds an important new software dimension to the Apple—the ability to run software written for the popular CP/M-80 operating system. With a SoftCard system product, you can access the thousands of programs written for CP/M-80.

SoftCard also gives you access to Microsoft's full line of programming languages like Microsoft® BASIC, which is included with each SoftCard package, and Microsoft® FORTRAN, COBOL, BASIC Compiler and A.L.D.S.™, which are available separately.

The SoftCard system began as a single product which attained over 60,000 installations in its first two years of availability. The Microsoft family of SoftCard products continues the tradition of reliable, top quality products.

Each of these products features the SoftCard system which includes:

**SoftCard Circuit Board.** Contains a Z80 microprocessor, making it possible for the Apple to run CP/M-80.

**CP/M-80 Operating System.** The software key to the languages and sophisticated applications software you want.

**Microsoft BASIC Interpreter.** Ideal for developing BASIC programs. Includes both low and high-resolution graphics.

**Complete Utility Programs.** Ten utility programs provide complete support of CP/M-80 on the Apple.

**Complete Instruction and Reference Documentation.** Includes documentation for Microsoft BASIC and CP/M-80, installation instructions, and the Osborne CP/M User Guide, an excellent tutorial book on CP/M-80.

**The Microsoft SoftCard System: Here's What It Can Do:**

- Enable your Apple to run the CP/M-80 operating system.
- Let you utilize high quality applications written for CP/M-80, including business, scientific and educational software.
- Let you write sophisticated programs using Microsoft's industry-standard BASIC Interpreter, which is included.

**ystem Requirements:** Apple II system—48K memory, one disk drive.

# SoftCard System of Products

Apple

The SoftCard™ Plus system brings together two of the most significant enhancement products available for the Apple—the Microsoft® SoftCard system and the Videx™ Videoterm™ 80-column card.

Together they form the versatile SoftCard Plus system which provides full CP/M-80 capability and 80-column display capability on your Apple II.

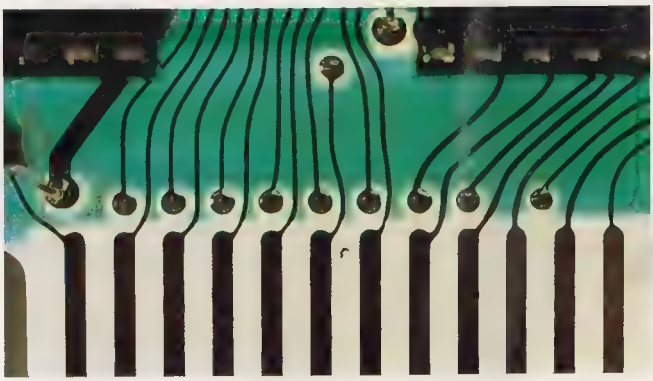
The SoftCard system includes a Z80 microprocessor, CP/M-80 operating system and Microsoft BASIC. The Videx card comes with two extra options in this package: a soft video switch and an inverse character set.

With this powerful system installed, you can utilize the wide array of business, scientific and educational programs that run under CP/M-80; you can write your own applications with Microsoft BASIC or other Microsoft languages that run under CP/M-80 on the Apple II; and you can display these programs in easy-to-read 80-column format and upper and lower case characters.

**The Microsoft SoftCard Plus System: Here's What It Can Do:**

- Let you run the CP/M-80 operating system on your Apple.
- Access the thousands of applications written for CP/M-80.
- Let you write your own programs with Microsoft BASIC or other high level Microsoft languages like FORTRAN and COBOL, which are available separately.
- Display your programs in an 80-column format, and double the amount of data you can display on an Apple screen.

**System Requirements:** Apple II system—48K memory, one disk drive, black and white monitor.



# SoftCard System of Products

Apple

The Microsoft® SoftCard™ Premium System gives you everything you need to utilize a full 60K CP/M-80 operating system and software written for it, on your Apple II. The system comes complete with:

1. The powerful Microsoft SoftCard system with its Z80 microprocessor, CP/M-80 and Microsoft® BASIC.
2. The Videx Videoterm 80-column card with two extra options: a soft video switch and an inverse character set.
3. The Microsoft® RAMCard™, a 16K memory board for the Apple II.

While the SoftCard system alone provides CP/M-80 capability, the Videoterm card and RAMCard provide the 80-column display and expanded memory common to CP/M-80 environments. With the SoftCard Premium System in place, you can make optimum use of software written for CP/M-80. You also can write your own applications with high level languages like Microsoft BASIC, FORTRAN or COBOL.

**Microsoft SoftCard Premium System: Here's What It Can Do:**

- Support a 60K CP/M-80 operating system on the Apple II.
- Let you utilize the wide array of software written for CP/M-80. With the SoftCard Premium System, you also can access powerful programming languages and write your own CP/M-80 applications.
- Give you Microsoft BASIC, the most powerful BASIC Interpreter you can buy for your Apple II.
- Allow you to run larger, more complex programs on your Apple. The Microsoft RAMCard boosts your Apple's memory capability to a full 60K.
- Utilize the Videx Videoterm card to display CP/M-80 programs in an 80-column format to double the amount of data you can display on an Apple screen.
- Let you print text in upper and lower case characters.
- Use the soft video switch to format your software for 40- or 80-column display, and have automatic selection of graphics.
- Use the inverse character set feature to display black letters on a white field.

**System Requirements:** Apple II system—48K memory, one disk drive, black and white monitor.

# RAMCARD™ MEMORY BOARD For Apple II



Apple

Microsoft® RAMCard™, a 16K memory card for the Apple II, provides the high quality solution to expanding your Apple's memory.

When used in conjunction with the Microsoft® SoftCard™ system, the RAMCard memory board lets you build a CP/M-80 system with a full 60K of user memory, enough to handle complex business programs and other applications that require large amounts of memory. The RAMCard board also can be used independently of the SoftCard system to provide additional user memory for other software packages such as the Microsoft® Multiplan™ electronic worksheet.

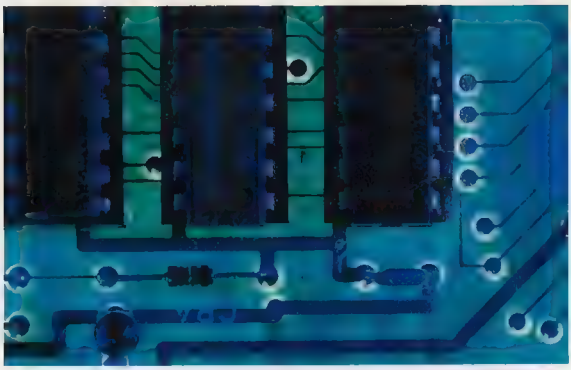
RAMCard assures the data reliability you need and features buffered memory, data bus drivers and gold-plated edge connectors.

The RAMCard board comes with all nine memory chips in place, complete instructions and a special IC puller.

**The Microsoft RAMCard Memory Board: Here's What It Can Do:**

- Combine with the Microsoft SoftCard system to form a 60K CP/M-80 system that lets you run large applications or write your own programs in many high level languages.
- Get more user memory for non-SoftCard programs such as electronic worksheets and database managers.
- Assure high reliability through superior design and manufacturing standards.

**System Requirements:** Apple II system—48K memory, DOS 3.3 recommended.



# RAMCARD™ MEMORY BOARD For IBM Personal Computer



IBM PC

Designed for the IBM Personal Computer, the Microsoft® RAMCard™ circuit card gives the PC user up to 256K of additional memory space. It also provides a new flexibility in how memory can be used, with two specific functions.

- It expands physical memory so you can run larger programs.
- It implements RAMDrive, a new application for memory that allows high speed access to files normally stored on diskette.

The RAMCard memory board is available in four configurations: 64K, 128K, 192K and 256K. Microsoft also offers upgrade packs of RAMChips so you can add memory in 64K intervals as needed. A set of diagnostic software included in each Microsoft RAMCard package lets you insure that all memory chips are functioning properly.

RAMDrive speeds data access more than 50 times by letting you store data in RAM that normally would have to reside in a mass storage unit—commonly, a disk. With the RAMDrive feature, you assign a "drive letter" to part of RAM memory. The RAMDrive software then instructs the program to go to the RAM rather than the disk for the files it needs, speeding overall program execution time by eliminating the need for disk access.

You can specify how the memory on the RAMCard is used—allocating it for program memory, RAMDrive or a combination.

RAMDrive complements rather than replaces your disk drive, which you still need for permanent file storage.

**The Microsoft RAMCard Package: Here's What It Can Do:**

- Let you run larger programs on your IBM Personal Computer.
- Speed program execution by accessing data files 50 times faster with RAMDrive.
- Offer memory in four configurations—64K, 128K, 192K and 256K—so you can choose the configuration that meets memory requirements for your programs.
- Enable you to add more memory later with Microsoft RAMChips, our 64K upgrade kit.

**System Requirements:** IBM PC system—64K memory, PC-DOS (MS™-DOS).

Apple

Microsoft's Typing Tutor II program provides a highly individualized approach to learning and teaching typing on a microcomputer. It is equally appropriate for personal use at home or in a classroom setting with many students participating.

Ideal for experienced as well as beginning typists, Typing Tutor II combines fun with learning. As you progress, you increase typing speed and accuracy through a series of personalized lessons and paragraph drills.

You choose your area of concentration—letters, numbers or symbols—and then learn new keys, practice using them in conjunction with keys you already know, and measure your proficiency with tests.

You receive instant feedback on your speed, accuracy, number of mistakes and weakest keys. This information is incorporated into subsequent lessons specifically tailored to work on the problem areas.

As a teaching device, Typing Tutor II is the perfect vehicle for presenting typing lessons and drills, and monitoring up to 49 students. Teachers can use up to eight different typing tests which can be edited.

**Microsoft's Typing Tutor II: Here's What It Can Do:**

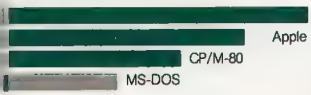
**For the User:**

- Help you acquire or improve typing skills with a combination of individualized lessons and drills.
- Let you start at the typing level at which you are most comfortable and master those keys first.
- Provide three options for evaluating your progress (individual key drills, paragraph drills or tests).
- Let you set your typing goals (build more speed or learn more keys) and then automatically structure your lessons to help you achieve them.

**For the Teacher:**

- Keep up to 49 student records confidentially stored.
- Have the option to add or delete students on the program.
- Utilize the three furnished typing tests and have the option of creating up to five more tests, all of which can be revised.

**System Requirements:** Apple IIe or Apple II system—64K or 48K memory, one disk drive, 16-sector disk, Applesoft BASIC.




muMATH™/muSIMP™, Microsoft's fully interactive symbolic math system, dramatically advances the mathematical capabilities of the microcomputer. With this package you have the tools to perform algebra, trigonometry, calculus, integration, differentiation and transcendental functions—operations formerly reserved for a few very large computers.

This two-part system consists of muMATH, the symbolic math package, and muSIMP, the general-purpose progamming language in which muMATH is written.

muMATH is a set of programs which efficiently and accurately perform true algebraic and analytic operations which are beyond the scope of traditional scientific programming languages. Acting as a sophisticated calculator, muMATH is just as convenient and easy to use. Expressions are transformed and simplified as they are entered, eliminating the need to write long programs.

muMATH is written in muSIMP, a high level language well suited to symbolic and semi-numerical programming. muSIMP was designed especially for implementing computer algebra systems. It is provided in this package for those who want to go beyond the calculator-type functions of muMATH, and for those who want to implement artificial intelligence applications.

**Microsoft muMATH/muSIMP System: Here's What It Can Do:**

- Perform both low and high level math operations and thus be useful to people with a wide range of mathematical ability.
- Allow the microcomputer to perform symbolic math functions previously reserved for a few powerful mainframes.
- Function as efficiently as a calculator, with similar ease of use, and perform symbolic math operations.
- Handle more advanced computer algebra systems by implementing muSIMP programming features.
- Make highly efficient use of memory space by letting the user load in only the portions of the muMATH package actually needed for a given application, and reserving more space for computations.

**System Requirements:**

Apple IIe or Apple II system—64K or 48K memory, one disk drive, 16-sector disk; Apple IIe or Apple II with SoftCard™ system—64K or 48K memory, one disk drive; CP/M-80 system—48K memory, one disk drive; MS™-DOS—64K memory*, one disk drive.

*Based on 44K available user memory. Use MS-DOS "check disk" utility to determine if available memory meets or exceeds 44K.

Apple

The muMATH™ symbolic math package from Microsoft turns your microcomputer into a mathematical genius. It tackles arithmetic, algebra, trigonometry and calculus problems, like the ones shown here, with calculator speed and 611-digit precision.

For example, have you ever wondered how many poker hands there are in a 52-card deck? To find out, enter: 52!/(5*(52-5!). The computer then replies: 2598960.

On a more practical level, perhaps you need to add the fractions 1/3, 5/6, 2/5, 3/7. You enter: 1/3+5/6+2/5+3/7. And your result is: 419/210.

An abbreviated version of the Microsoft® muMATH™/muSIMP™ system, muMATH provides basically the same symbolic math programs and incorporates the most significant features of the larger system. It can perform operations such as exact rational arithmetic, algebraic simplification of expressions, exact solutions of algebraic equations, integration, differentiation and transcendental functions.

This muMATH package is ideal for students, beginning mathematicians and others who need a symbolic math program to create applications of varying complexity.

Like muMATH/muSIMP, this package uses the powerful "calculator mode" of operation. It also is written in the muSIMP language but does not include muSIMP programming features. Most users will find muMATH powerful enough to solve their mathematical problems.

**Microsoft muMATH Symbolic Math Package: Here's What It Can Do:**

- Allow a microcomputer to perform a variety of symbolic math functions that previously were restricted to a few large computers.
- Handle both high and low level mathematic operations (trigonometry to arithmetic) for a variety of users.
- Function as efficiently as a calculator, with similar convenience and ease of use.
- Offer a symbolic math package that has all the functions you need, yet is still easy to use. The most frequently used muMATH operations are precompiled into one convenient module.

**System Requirements:** Apple IIe or Apple II—64K or 48K memory, one disk drive, 16-sector disk.

Apple

Now you have the chance to become a champion in the greatest of all athletic competitions with this exciting skill game.

The Decathlon has been called the truest test of an athlete. It demands excellence in ten different events that encompass three diverse disciplines—running, jumping and throwing. In Microsoft® Decathlon, you'll participate just as if you were in actual competition.

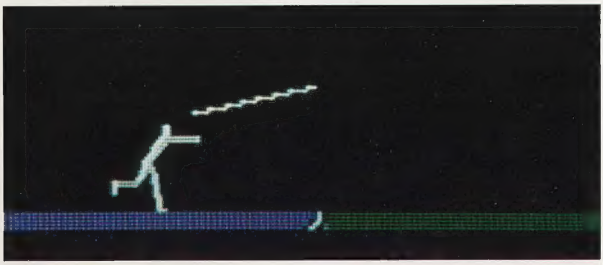
Each Decathlon game includes these events: 100-meter dash, shot put, 400-meter dash, discus throw, javelin, long jump, high jump, 110-meter high hurdles, pole vault and 1500-meter run.

Every event is presented with extraordinary animated graphics. You must interact with the animation in real time, using the keyboard or game paddles to control the figures on the screen. To emerge the victor, you'll need a good sense of timing, fast reflexes and good coordination.

**Microsoft Decathlon: Here's What It Can Do:**

- Let you enjoy the excitement of Olympic competition any day, using your personal computer. Decathlon's exceptional graphics will make you feel like you're there.
- Keep you interested, even after you've played the game a hundred times. Decathlon's ten different events keep it exciting; you won't learn one "trick" for a perfect score.
- Let you compete against up to five other players. You also can have fun playing Decathlon by yourself.
- Provide a practice mode to build skills in each event.

**System Requirements:** Apple IIe or Apple II—64K or 48K memory, 13- or 16-sector disk, one disk drive.



IBM PC

Experience the excitement of flying your own plane with Flight Simulator, Microsoft's highly realistic program modeled after the flight characteristics of a single-engine Cessna 182. Flight Simulator features working instruments, panoramic out-the-window views and real-time flight conditions.

Flight Simulator is easily tailored to any ability level. For your first solo flight, you can choose "easy flight mode" and learn the fundamentals of flight control. Once you've mastered these basics, you can move on to the more complex and sophisticated "reality flight mode."

Whichever you choose, Flight Simulator features extraordinary graphics that closely simulate a pilot's actual perspective. You control the aircraft's flight and position, and can select your flight conditions by altering the time of day, the season, and the weather. Instrumentation is so complete and accurate that it meets the FAA regulations for day and night, visual and instrument flight conditions.

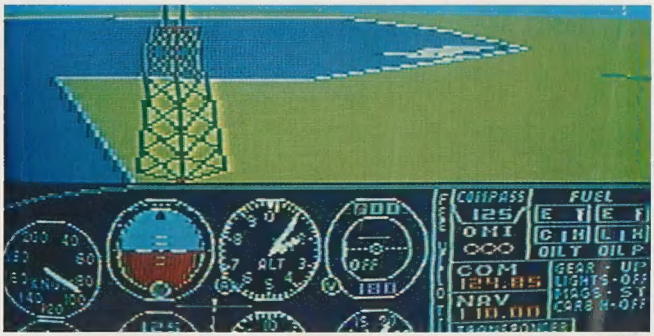
For a change of pace, choose the "Europe 1917" game mode and transform your flight into World War I Europe. You'll fly across enemy lines, attack enemy fighters, hit bombing targets and try to avoid being shot down.

**Microsoft Flight Simulator: Here's What It Can Do:**

- Provide a highly accurate simulation of real-time flight in a single-engine plane.
- Adapt to any ability level with an easy mode for beginners and a reality mode for experienced aviators.
- Let you alter environmental factors.
- Offer the challenges of over 20 airports with varying terrain.
- Let you play the "Europe 1917" game.

**System Requirements:**

IBM PC—64K memory, PC-DOS(MS™-DOS), one disk drive. Color display is generated only when a color composite type monitor is used. Black and white display is generated with an RGB monitor.



MICROSOFT™

MICROSOFT CORPORATION
10700 NORTHUP WAY
BELLEVUE, WASHINGTON 98004